RECOMMENDED VISION SCREENING GUIDELINES FOR CHILDREN AGES 3 and Older

ARIZONA DEPARTMENT OF HEALTH SERVICES
BUREAU OF WOMEN'S
AND CHILDREN'S HEALTH
SENSORY PROGRAM

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ADHS Vision Screening Guidelines Task Force

Denise Allen, R.N., B.S.N., Tempe Schools
Panfilo Contreras, Arizona School Board Association
Robin Daviet, Lions Club of Laveen
Kim Elliott, Ph.D., Arizona Health Care Cost Containment System
Felipe Flores, T3 Trainer
Gretchen Fuller, VisionQuest 20/20
Miranda Graves, Arizona Department of Education
Virginia James, Arizona Department of Health Services
Laurel Kruger, R.N., B.S.N., M.Ed., N.C.S.N., Tucson Unified School District
Karen Kuhfuss, Arizona Department of Health Services
Lynn Ladd, Arizona Department of Education
Carol Lamoureaux, VisionQuest 20/20
Lorraine McCabe, Navajo Head Start
Patty Merk, Ph.D., University of Arizona Cooperative Extension-Maricopa County
Kelley Murphy, First Things First
Dr. James O'Neil, M.D., VisionQuest 20/20
Alison Rapping, VisionQuest 20/20
Maggie Rodriguez, R.N., Tucson Unified School District
Shirley Rodriguez, R.N., B.S.N, C.S.N.P., School Nurse Organization of Arizona
Jeanette Shea, Arizona Department of Health Services
Sheila Sjolander, Arizona Department of Health Services
Angela Soliz, VisionQuest 20/20
Dr. Peggy Stemmler, M.D., M.B.A., Arizona Academy of Pediatrics
B.J. Tatro, Ph.D., Consultant
Dr. Roy Teramoto, M.D., Indian Health Service
Richard Tirendi, VisionQuest 20/20
Detza Van Bogaert, M.S.W., University of Arizona Cooperative Extension-Maricopa County

CONTACT INFORMATION:

Arizona Department of Health Services
Bureau of Women's and Children's Health
Sensory Program
150 North 18th Avenue, Suite 320
Phoenix, Arizona 85007
Phone: 602-364-1400
www.azdhs.gov

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Section I: Introduction

The Arizona Department of Health Services (ADHS) works to improve health outcomes of all children in Arizona. As the state agency charged with responsibility for overseeing children's health issues, the Department supports actions for the benefit of children's health by setting programmatic policy and making procedural recommendations.

These guidelines were developed with the advice and contributions of the ADHS Vision Screening Guidelines Task Force. A facilitated process of reviewing professional recommendations and related literature was conducted over three meetings in 2009 and 2010. A final review was conducted by a panel of stakeholders with interest and experience in vision screening of children.

Vision screening of children, unlike hearing screening, is not currently mandated by Arizona state law. However, vision screening can be a positive and worthwhile undertaking in helping to identify children who may require further evaluation of their eyesight. The vision screening process can lead to early detection and correction of vision problems which positively impacts a child's opportunity for academic success and learning potential. Therefore, ADHS has an interest in ensuring that vision screening of children is accomplished in as reliable, valid and consistent manner as possible.

These guidelines apply to vision screening programs occurring in school and community settings. Sensory screening also occurs during well-child care visits in a medical setting where vision problems may be detected. Not all children have access to primary care. School and community screenings may be the only avenue for some children to have vision screening completed. When vision problems are identified during school and community screenings and a child has a primary care provider (PCP), communication and coordination with the child's PCP is the key to follow-up, diagnosis and treatment. When a child has no primary care, linking the family to a community resource for follow-up, diagnosis and treatment is essential.

The purpose of this document is to provide information, guidance and recommendations for implementing a vision screening program for children ages 3 and older in school and community settings. Vision screenings are becoming more common in child care settings and at community events such as health fairs. Regardless of the setting, there are standards of practice that make vision screening a viable and cost-effective community health strategy. This document provides guidance and practical information on the screening process, appropriate screening tools, referral criteria and follow-up procedures. The guidelines are not intended to serve as a complete resource for eye health or eye care. The sources and references used for the guidelines are research-based.

Children's Vision Screening

What is children's vision screening?

Children's vision screening is a systematic approach to identifying children with potential vision problems. The focus is on detecting conditions that are commonly occurring and can be easily corrected. Typically, traditional vision screening of children assesses distance vision of both eyes (binocular vision) and one eye at a time (monocular vision). Near vision and color vision are additional parameters which may be included as part of a traditional vision screening program. Alternatively, newer technologies may be employed which can evaluate for focusing problems, eye alignment, and opacities within the eye. Vision screening does not take the place of a complete or comprehensive eye examination which only an eye care professional can provide.

Why screen children's vision?

The development of a child's sense of sight occurs over a period of years and is most sensitive to correction during the first seven to eight years of life (Eliot, 1997). As children age, there may be changes in their vision that may impact their learning. Many vision problems in children go undetected by parents, teachers and the children themselves without a formal vision assessment. Vision screening can help detect or identify a problem with a child's eyesight so it can be caught early when treatment can be most effective. If a problem is detected, the child's parent or guardian is notified and the child is referred for further evaluation and treatment if necessary. A well-developed vision screening program may help identify children ages 3 and older who may require additional follow-up with an eye care professional for a professional examination.

What is the difference between a vision screening and an eye examination?

A screening for the purposes here "involves the appraisal of only those conditions that are commonplace and amenable to easy and early intervention" (Proctor, 2005, p. 5). Screenings described in these guidelines do not involve examination of eye structures such as the retina to determine eye disease.

There are several important differences between vision screening and a vision examination. These are outlined in the table below:

Table 1: Comparison of Screening and Examination

Screening	Examination
Identifies children at high risk for visual problems or in need of a professional examination through risk assessment and vision screening	Examines children for eye disorders and diseases
May detect signs of disorders in early, treatable stages	Diagnoses eye disorders and diseases
Provides parents and teachers with valuable information and education about eye care	Prescribes and monitors treatment
May result in a referral to an eye care professional or primary care provider	

What is the importance of vision screening?

Children are often unaware that they are seeing "less" than they should and often do not complain of visual difficulties. Identifying children who may have issues with vision "appears to have substantial benefits in simpler, more effective, and less costly treatment, improvement of developmental outcomes, and enhancement of quality of life" (AAPOS, 2001 as cited in Proctor, 2005).

If not detected and treated early, vision problems in children can lead to a variety of long-term consequences. Untreated vision problems can lead to:

- Permanent loss of vision
- Difficulty learning
- Delayed sensory and social-emotional development

An understanding of the importance of vision screening by administrators, teachers, school nurses, other school personnel and parents is critical to the outcome of a child's academic success. Vision deficits are a common problem in the preschool and school age population. Early detection and treatment of these deficits will lessen the possibility of any damaging long-term effects and may have a direct impact on each child's academic performance.

The focus of these guidelines is on providing quality screenings as consistently as possible. Although the optimal situation is for screenings to be performed and/or supervised by nurses, the guidelines recognize that other health care and non-health care professionals, teachers and/or volunteers may be involved in the vision screening process. Therefore, it is even more important that these recommended guidelines be followed when conducting vision screening of children.

GD-100-PHS-WCH: Vision Screening Guidelines for Children

The ability to screen young children is dependent upon several criteria including the child's capacity to understand directions and having developed the cognitive ability to perform the screening successfully. Those conducting vision screenings with preschoolers will need to determine whether or not the child has met the above criteria.

For children birth through age 2, vision screening should be conducted by a health professional or by other specially-trained individuals. The guidelines contained in this document do not necessarily apply to vision screening for this population. The attachment section includes Age-Appropriate Pediatric Vision Screening Guidelines recommended by The American Academy of Pediatrics (AAP) combined with the American Academy of Ophthalmology (AAO) and the American Association of Pediatric Ophthalmology and Strabismus (AAPOS).

An effective vision screening program includes the following components:

- Periodic scheduled screenings
- Re-screening, as necessary
- Notification of results to parents or guardians and others
- Referrals to appropriate professionals
- Follow-up of referral outcomes
- Continual program evaluation

These guidelines address each of these elements. Utilization of the recommended guidelines will promote implementation of a quality, reliable and effective vision screening program.

Section II: Vision Basics

Our eyes receive messages from the outside world and transmit them to our brain. All images we see are the result of reflected or emitted light from the surfaces of objects that we view.

The vision process begins when light rays enter the eye through the transparent, curved **cornea**. The cornea directs the light through the **pupil**. The pupil is an opening that can be expanded or constricted by the **iris** to control light entering the eye. The light is then focused toward the **retina** by a transparent lens. An upside-down image is formed on the retina in the back of the eye.

Cells on the retina called rods and cones can sense light and color. Rods detect black and white, while cones detect colors. The cells on the retina turn the picture into electrical signals (nerve impulses) that travel along the **optic nerve** to the brain. The images from both eyes are combined and are "seen" by the brain as right side up.

Some parts of the eye are protective. The eyelids, cornea and sclera all protect the eye from injury. The sclera is the outer "white part" of the eye. The outer wall is tough and gives protection to the delicate inner structures. Figure 1 is an illustration of the major eye structures. Defects in any part of the eye may cause visual deficits.

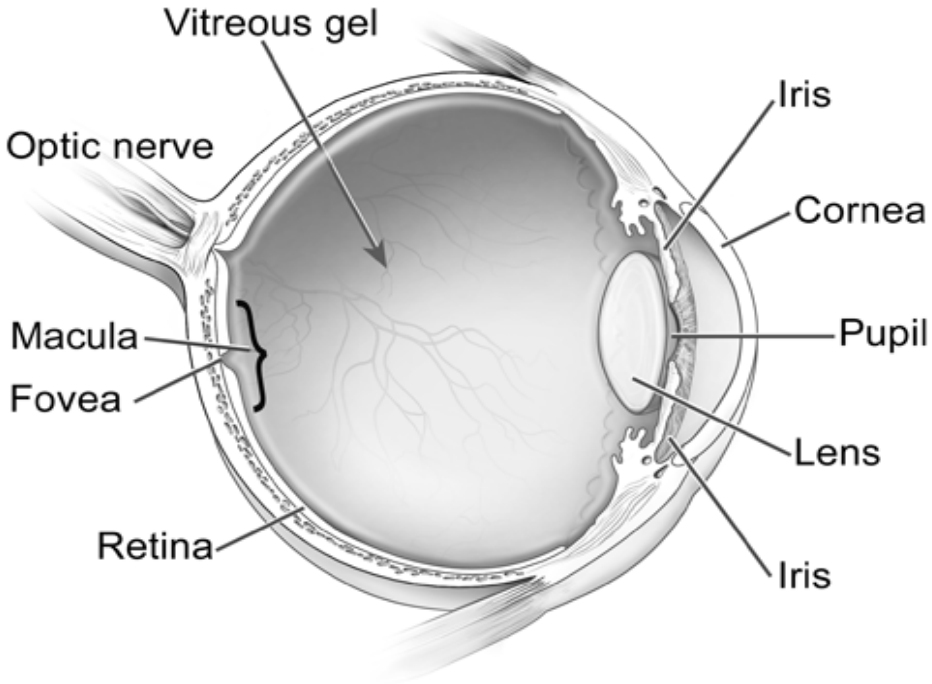

Figure 1: Major Eye Structures
Source: National Eye Institute, National Institutes of Health

Section III: Common Vision Problems

The goal of screening is to detect commonplace possible or potential visual anomalies and refer for examination and treatment. This section outlines and describes some of these anomalies.

Refractive Errors

Refractive errors are caused by a defect in the shape of the cornea or the shape of the eye. All refractive errors may occur in one eye and not in the other or in both eyes equally or in differing degrees in each eye. The result is blurred vision for near and/or distant objects. The following are common refractive errors:

Distance Vision-Myopia - Nearsightedness

Myopia is the most common vision problem seen in children. Myopic eyes are too long from the front to the back. The images of distant objects are focused in the front of the retina and appear blurred. This is commonly known as nearsightedness because near things are seen more clearly than distant objects.

Near Vision-Hyperopia – Farsightedness

Hyperopia is the result of an eyeball that is shorter than normal from the front to the back. The image of near objects is focused behind the retina resulting in blurred near vision. It is commonly called farsightedness because distant images are seen more clearly.

Astigmatism

Astigmatism is caused by an uneven surface of the eye that prevents light rays from falling on a single point on the retina. The normal cornea is round like a basketball while the astigmatic cornea is irregular and elliptical, like a football.

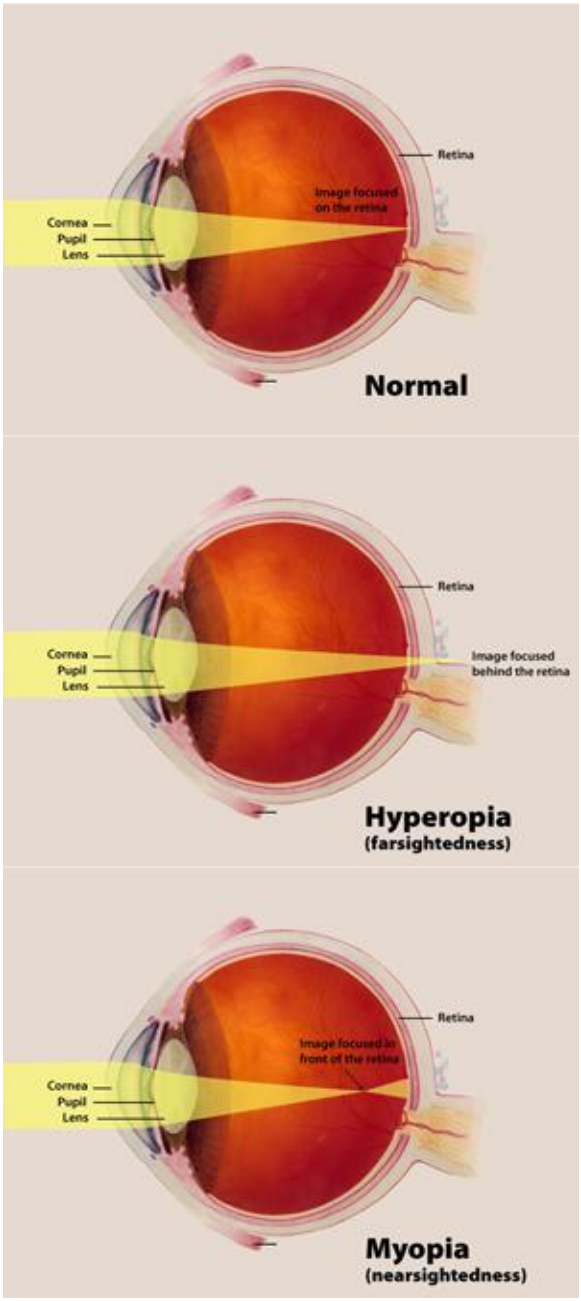

Figure 2:
Illustrations of Normal Vision, Hyperopia and Myopia
Source:
National Eye Institute, National Institutes of Health

Strabismus–Crossed Eyes

Strabismus is a misalignment of the eyes that prevents them from looking at the same object together. One eye may be directed inward, outward, or rarely, up or down in relation to the other eye. The condition can be alternating or intermittent in either or both eyes. Strabismus usually occurs in early childhood because of improper development of the muscles that align the eyes. When one eye turns while the other sees straight, a double image is sent to the brain. Strabismus is one of the primary causes of amblyopia. Loss of vision in the affected eye may be avoided if it is treated early.

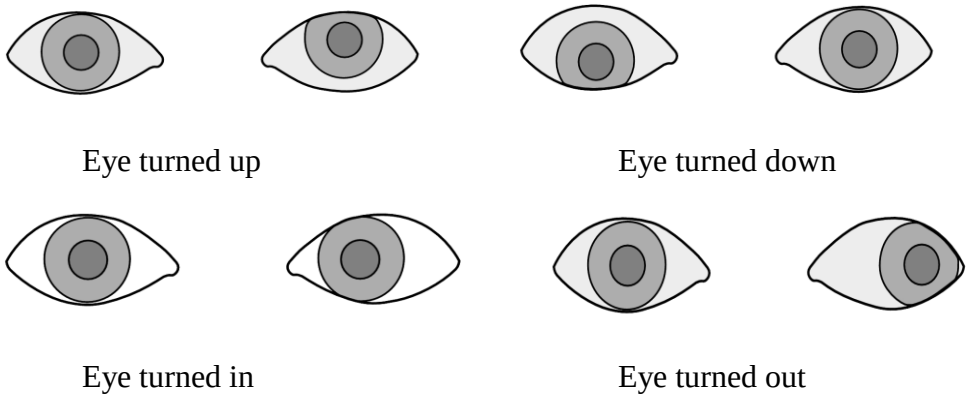

Figure 3: Illustration of Strabismus Conditions
Source: Prevent Blindness America (Used with permission)

Amblyopia-Lazy Eye

Amblyopia occurs when the eyes are not working together and the brain cannot fuse the images from each eye into one clear image. If the images from each eye are very different, vision in one eye will be suppressed to avoid double vision. Normal vision will not develop in that eye. Screening for amblyopia should be done preferably by age 8, but the earlier, the better. If amblyopia is not detected before the age of 9, the child may have permanent vision loss in the affected eye. Treatment can be very successful if started before the age of 6. Therefore early detection and compliance with treatment is critical in preventing permanent vision loss.

Amblyopia may be caused by several conditions. Most often it is the result of unequal refractive error or strabismus (described in the previous section). Differences between the information received in each eye and sent to the brain occur if there is:

- A large visual acuity difference or a marked difference in the refractive error between the right and

left eyes

- A muscle imbalance (strabismus)
- A combination of the above

Amblyopia may also be caused by health issues of the eyes such as cataracts and drooping eyelid. This is due to the difference in image quality between the eyes that these conditions present. In these cases, the brain suppresses the image of poorer quality, causing a permanent vision loss in the affected eye unless detected and treated early in childhood while the vision system is still developing. Rarely does amblyopia fully respond to treatment after age 9, but for some disorders (dense cataracts) the period of visual plasticity is much shorter and treatment needs to be instituted at a much earlier age (sometimes even infancy).

Color Deficiency

Children with color deficiency have difficulty identifying certain colors. Color deficiencies are a result of a defect in special cells on the retina called cones. This defect is more common in boys than girls. Color vision defects are not sight-threatening and there is no correction for this condition. However, it is important for parents or guardians, teachers and others to be informed about this condition as the condition can be reasonably accommodated under Section 504 of the American's With Disabilities Act.

Section IV: The Screening Process

This section provides recommendations regarding the vision screening process. Included are the recommended guidelines for the screening populations and appropriate screenings, an overview of visual acuity screening for distance and near vision, an overview of stereopsis screening, an overview of color deficiency screening, information about setting up screenings and referral criteria.

State Recommended Guidelines for Vision Screening Populations

The minimum recommended vision screenings for Arizona by population are listed below. Additional screenings beyond these guidelines are encouraged if time and resources are available. **If at all possible, an *annual* vision screening is recommended up to and including children in fourth grade to identify vision problems early when correction and measures to preserve sight can be most effective.** From fifth grade and up, screening is recommended every other year.

Table 2 lists the types of screenings by age as recommended by the American Academy of Pediatrics, the American Academy of Ophthalmology, the American Academy of Pediatric Ophthalmology and Strabismus and the U.S. Maternal and Child Health Bureau/National Eye Institute.

Table 2: Minimum Vision Screening Guidelines by Population

Children ages 9 and younger (Preschool, kindergarten, first, second, third and fourth grades) ***Should be conducted annually***	**Children ages 10 and older (Fifth grade and up)** ***Should be conducted every other year***
Distance visual acuity	Distance visual acuity
Stereoacuity	Near visual acuity (optional)
Color deficiency-one time	

All children new to a school district, those receiving special education services and those for whom a request has been made by a parent, teacher or other professional should be screened for vision according to the chart above.

Planning and Preparation for Screening

Planning Meeting

Planning is essential to a successful vision screening. A meeting of the key individuals who will be providing technical and administrative support should be arranged well in advance of the screening. Choose a date that is not in conflict with other school activities and place it on the school calendar.

Determine how many children are to be screened from the various age groups. Then determine the number of additional staff and volunteers that will be needed for efficiently and effectively screening.

Determine the best space for the screening site. Take into consideration which screening tools will be used and how many stations will be needed. The room selected should be at least five feet longer than the distance required for each screening procedure. It should be well-lit with no distractions or patterned wall or direct sunlight.

Confidentiality and compliance with Family Educational Rights and Privacy Act (FERPA) and/or Health Insurance Portability and Accountability Act (HIPAA) regulations need to be addressed and privacy needs to be considered. Review your organization's policies regarding these regulations and set up the space accordingly.

Schedule a training date and time for staff and volunteers. For rescreening, set a date and time for that as well within 30 days of the initial screening. Confirm these dates with staff and volunteers. Training can be held one to two hours prior to the screening. Be sure to review FERPA and/or HIPAA policies with all individuals involved with the screening.

Informing Parents

Consult and comply with school/organization policies and procedures regarding communication with parents and guardians. A common practice is to include information about screenings in parent handbooks, school newsletters and other general means of communication. Parents who do not want their child screened may opt out and instructions for doing this should be included in the general communication. A sample form is provided in the attachments section of this document. Be sure to mention that children who were not present for the first screening or who experienced difficulty during the first screening will be screened (or rescreened) later. If a child was not present when class/mass or group screening was conducted, the eventual screening should be considered an initial screening rather than a second screening. Explain that if a child has difficulty meeting the criteria during a second screening, parents and guardians will be notified with a referral to an eye professional, primary care physician or other resource for further examination.

Preparing Children

Children can be included in the preparation process in a variety of ways. If possible, work with the teachers to talk about the screening in advance and describe and practice what will happen. Young children may play a matching game with the symbols and letters to practice a few days or a week before.

GD-100-PHS-WCH: Vision Screening Guidelines for Children

Vision Screening Coordination

Vision screening requires the assistance of one or more people working together to conduct an efficient and successful event. Vision screeners are individuals identified as being responsible for planning, conducting and/or implementing a program of screening children for vision. The individual may be a nurse, a health assistant, a teacher, another health professional, a parent, a volunteer or other individual who has agreed to take on the vision screening process. As a person responsible for this task, it is critical that the individual become trained in the screening process and methods used. Training can be accomplished in a variety of ways. ADHS can serve as a resource for available training.

Successful vision screening needs to be organized to function smoothly and in a way that validly and reliably screens a child's vision. The organization of the screening depends upon the methods used for screening, the setting, numbers and ages of the children and other factors related to the population.

For a traditional vision screening, three major roles are recommended for conducting children's screening. Each screening, whether for preschool or school-age children, requires the presence of at least one trained screener who takes on one of the roles listed below. One or more volunteers may assist the trained screener. However, responsibility for the screening, screening procedures and methods, referral process and follow-up lies solely with the trained screener(s) regardless of which role(s) he or she assumes at the screening.

The roles are:

- Trained vision screener
- Proctor (person conducting the screening)
- Recorder (needed if using wall charts)

Additional staff and volunteers may be enlisted to bring the children from the classroom to the screening location and/or direct the children.

Preschool Screening Practices

Young children may need help understanding or cooperating with the screening process. Be sure to assess the screening ability of young children as their developmental and cognitive levels vary greatly between ages 3 and 5 (See Section I). When using wall charts, vision screening with preschoolers is best conducted with a minimum of two trained/certified screeners. Volunteers may be utilized as an assistant or recorder. When only one trained screener is assigned to the site, he/she will need assistance from one or two volunteers.

School-Age Screening Practices

When using wall charts, two trained screeners are also recommended for school-age screening. However, one trained screener working alone or with a volunteer can conduct all aspects of the screening, depending on the size of the groups and methods used.

Training for Volunteers and Others

Adequate time should be allowed before the actual vision screening to train volunteers and other helpers.

The training should include:

- An orientation to the screening process and set-up
- An introduction to the screening tools, process and procedures
- Confidentiality and communication
- Recordkeeping
- Flow of students in and out of the screening area

Infection Control Considerations for Vision Screening

Sanitation practices are an important part of the screening process. Be sure to take appropriate measures to minimize the spread of infection and disease. Below are some specific steps to help ensure everyone stays healthy.

- Be sure to wash hands with soap and water before beginning screening. Antimicrobial hand gel is permissible if running water is not available.
- If utilizing reusable eye occulders, they must be disinfected with an appropriate antimicrobial agent or alcohol wipe before the start of the program and after each child is screened. (Adapted from Minnesota Vision Screening Procedures, 2009). Disposable, non-irritating occluding patches are available to avoid spreading of disease and to insure full occlusion of eye.
- Children whose eyes are red or draining should not be screened but referred immediately to their primary care provider.

Care of Vision Materials and Equipment

Vision tools and equipment will last a long time if maintained properly. Take the extra time necessary to clean and store items to keep them in good working condition. Below are some suggestions for taking care of vision screening tools.

- Color vision books should **be kept closed when not in use to prevent fading.**
- **Do not touch the color plates with** your fingers as the oil on your skin can damage the plates. Use a clean artist or cosmetic brush to clean the plates.
- Do not allow children to touch the color plates with their fingers. Use a long-stemmed cotton swab or other type of pointer.
- Clean visual acuity charts periodically with mild warm, soapy water to prevent distortion of chart letters from dirty smudges.
- Frequent cleaning will be necessary for the child's Lea response card since the children handle them a lot.
- Discard chipped or torn charts.
- Charts should be laid flat and away from heat when stored to prevent curling.
- Flashlights used in screening should be stored with batteries removed. (Adapted from Minnesota Vision Screening Procedures, 2009).

Appearance, Behavior and Complaints

Before any screening tool is used, the screener has an opportunity to discover whether or not there are areas of concern. By using the ABC's of Vision Problems listed below, the screener may uncover information to aid in the screening.

By simply observing the appearance of a child's eyes and watching his/her behavior during vision screening, a person can identify signs of possible concern. This process is called observation of the ABC's. A description of the appearance of the eyes, child's behavior and their complaints is listed below and in the attachment section. Careful attention to the items listed is a first step in a vision screening. Observation of any of these signs is sufficient reason to refer a child for an examination. In such cases it is not necessary to proceed further with screening.

ABC's of Vision Problems

Appearance

- Eyes cross, turn in or out
- Eyes "wander" all of the time, part of the time, or when the child is tired
- Red, watery or encrusted eyes
- Drooping eyelid(s)

- Frequent stys
- Presence of a white pupil – as the screener observes it or it appears in a photograph
- Eye injuries resulting in bruising, swelling or bloodshot eyes

Behavior

- Squinting, frowning, blinking or squeezing the eyes
- Thrusting head forward, or backward while looking at distant objects
- Rubbing the eyes
- Turning the head to use only one eye
- Tilting the head to one side
- Placing the head close to a book or a desk when reading or writing
- Closing or covering one eye, especially in sunlight
- Tripping, stumbling or daydreaming excessively

Complaints

- Headaches
- Eye pain
- Nausea or dizziness
- Burning, scratchy or itching eyes
- Blurred or double vision
- Words that "move" or "jump" when reading
- Sees blur when looking up after close work
- Unusual sensitivity to light

Overview of Visual Acuity Screening

- Visual acuity screening determines how clearly a person can see and discern fine visual details. Screening can be completed for distance vision and near vision. These guidelines call for distance vision screening with all ages of children. Near vision for all ages of children is an optional screening. Children who cannot pass the distance acuity screening may have defects that cause things to appear blurred at a distance such as writing on a chalkboard or words on a projected screen. Near visual acuity screening will identify children who may have difficulty seeing up close such as reading a book or computer screen. If a parent or child is concerned

about near vision, the child should be screened.

- Screening for visual acuity may be typically determined by using any one of several methods by having a child "read" or react to a standardized visual stimulus. Recommended tools include an eye chart or symbols chart at a standardized distance or the use of other computerized screening methods. For distance acuity, this is usually 10 feet or 20 feet depending on the tool and the manufacturer's instructions. For the optional near vision screening, this is usually accomplished with near vision acuity charts or cards held 13 to 14 inches from the eye.
- Visual acuity is recorded as a fraction. The larger the bottom number the worse the vision!
- The numerator (top number) represents the distance a person with normal vision can clearly see letters or symbols shown.
- The denominator (bottom number) indicates the smallest line in which the child could correctly identify more than ½ of the symbols/letters (i.e., the distance at which a normal eye could read that line).

Examples

- 20/20: The child can see details on the chart that a child or person with normal vision would read at 20 feet.
- 20/200: Indicates a child reads at 20 feet, the line that a child or person with normal vision would read clearly at 200 feet.

Setting Up the Visual Acuity Screening Area for Distance Vision

The environment in which vision screening is done should be conducive to accurate screening. It should consist of:

- A quiet area free from disturbances.
- A room at least 25 feet long to permit use of the 20 foot eye chart. A room at least 15 feet long is required for the use of the 10 foot chart. A smaller room may be used as deemed appropriate by space requirements of the method being used.
- If using charts, they should be placed on an uncluttered, non-patterned wall.
- Normal light, without shadows or glare.

The following steps are helpful in preparing for visual acuity screening. Be sure to consider which screening tools are to be used and consult the manufacturer's instructions for their use.

Steps in Setting Up Visual Acuity Screening Area for Distance Vision

- For a chart, select a wall that ensures an unobstructed view for the children. If possible, choose a plain neutral colored wall that is uncluttered. A 3 foot X 3 foot piece of plain paper may be used as a background when it is necessary to hang the chart on a patterned or cluttered wall.
- Strongly consider a low traffic area free of distractions that may hinder a valid reading.
- Place the chart or equipment away from windows that may cause glare or shadows. Place plain paper over windows to reduce glare, if necessary.
- For charts, the passing or critical line should be approximately at eye level with the child to be screened. This is generally 42" from the floor to midway between the 20/30 and 20/40 lines for the Lea Symbols™ chart; and 48" from the floor to the 20/30 lines for the ETDRS ™ chart.
- When using a chart, measure off and mark 10' or 20' on the floor with masking tape depending on the chart you are using.
- For chart screenings, use footprints also called "happy feet" or "magic feet" and tape them to the floor with the back of the heel on the footprint on the 10 foot or 20 foot mark.
- Place a chair and a pointer (may be a pen) near the chart for the proctor.
- Place a table, occluders, and symbols card (if necessary) near testing line where child will stand.
- Place a table, chair, and record forms at the recorder's station. This is typically midway between the chart and the child and off to the side.

When using technology or computer-based screening methods, follow manufacturer's directions for set-up.

Setting Up Visual Acuity Screening Area for Near Vision
(Optional Screening)

If near vision screening is to be conducted during a traditional screening, these guidelines recommend the use of near vision acuity cards/charts. Cards/charts should be mounted on the wall to control the focal distance specified by the manufacturer. A tool with occluders attached to a cord can be helpful in maintaining the specified focal distance.

Tips for Effective Visual Acuity Screening

- Mark the respective passing lines on the tool inconspicuously when using the same acuity chart for screening preschool and school age children.

- Always screen the child's right eye first (it is recorded that way on the paperwork and in case you are interrupted – you know that you always started with the right eye first). Make certain that the child does not peek, squint, or tilt his head. If a child squints on any line, do not count that line as passed.
- Have the child hold the occluder in place so that they cannot see. For some populations, it may be necessary to have a volunteer hold the occluder in place. Hands are not to be used as a substitute for an occluder. Disposable eye patches are available to insure full occlusion and to avoid spreading of disease.
- Start by having the child identify symbols prior to the screening. If a child appears uncertain about identifying the symbol or letter, ask for one answer. Say to the child, "I'm not sure what you mean, show me/tell me again." Do not coach the child. For example, do not ask if the symbol is a house or a square. Do not permit the child to make a couple of guesses hoping for a sign of approval from you.

Referral Criteria for Distance and Near Vision

- Worse than **20/40 –** ages three to five in either or both eyes
- Worse than **20/30** ages six and up in either or both eyes
- Or you have recorded the child as having a two line difference on the chart you are using

If using technology or computer-based screening methods, they usually will automatically determine the correct pass/fail criteria for the child.

Overview of Stereopsis Screening

Stereopsis is full, three-dimensional depth perception. Stereopsis is only possible when both eyes are in alignment and can perceive the same image clearly (Proctor, 2005, p. 203).

Setting Up for Stereopsis Screening

The stereopsis screening tools recommended require a table and two chairs, one for the screener and one for the child. This screening is conducted in a brightly lit environment. Materials and equipment needed include the screening tool, polarized glasses and recording materials.

If using technology or computer-based screening methods, stereopsis screening may be incorporated

in their program at age-appropriate levels and may not require additional setup. Refer to manufacturer's directions.

Referral Criteria for Stereopsis Screening

Use the manufacturer's instructions to assess whether or not the child passes this screen.

Overview of Color Vision Screening

The ability of the human eye to see color is one of the many remarkable differences between us and other mammals. Color vision has an important role in learning and its environments, choice of career, and quality of life. To see color, cones in the eye contain photochemical receptors that are sensitive to red, green or blue light (Proctor, 2005). When a person has photoreceptors that are diminished, not present or unresponsive or the cones themselves have been altered, a color disorder can result. Color disorders can be genetic, due to disease or injury or even medication. The screening recommended in these guidelines is for color deficiency.

Setting Up Color Vision Screening

This screening requires a table no more than 3 feet wide and two chairs, one for the screener and one for the child. The screening tool, long-stemmed cotton swabs to use as pointers, a clean artist or cosmetic brush for cleaning the tool and a container for keeping the tool out of dust are needed.

Referral Criteria for Color Vision Screening

Use the manufacturer's instructions to assess whether or not a color deficiency exists.

Rescreening

Inevitably, some children will have comprehension or performance issues which will result in difficulty obtaining accurate results with one or more vision screenings. Other children may be absent from school on screening day or will need to be rescreened for some other reason. These guidelines recommend that children who meet the criteria for referral on the first screening day be rescreened at the discretion of the vision screening supervisor. The rescreening day also provides an opportunity to initially screen students who were absent the first screening day or were otherwise not able to be screened. Rescreening should be held within 30 days of the initial screening.

Section V: Recommended Screening Tools

This section provides information on the screening tools recommended for screening for visual acuity, stereopsis and color vision. When using charts for screening, the specific charts in this document are recommended as the result of a review of recent research regarding their levels of validity and reliability. If charts are not mentioned, it is because no current research supports their use. Manufacturer's instructions should always be followed. As with learning any new skill, study and practice are required to become proficient.

Visual Acuity Screening for Distance Vision

There are many commercial screening tools available. These guidelines have selected the ones listed below for their validity, reliability, ease of use and cost.

- Lea Symbols Distance Vision Chart™ (ages 3-5)
- ETDRS Letters Distance Vision Chart™ (ages 6 and older)

Lea Symbols Chart™

The Lea Symbols Chart™ was designed especially for children under the age of 6: specifically, 3-5 year olds. The chart discourages a sense of failure on the part of the child and is particularly useful in screening non-English speaking or non-verbal children. The tool consists of four familiar symbols:

- Circle, sometimes referred to as a ring, a ball or "a-round"
- Square, sometimes referred to as a block or a brick
- House, sometimes referred to as a triangle, a church, or an arrow
- Apple, sometimes referred to as a heart

Screening is conducted at a distance of 10 or 20 feet. Check the chart for the correct distance for the chart you are using. The child responds by naming the symbol or by pointing to its match.

The symbols in this chart were selected because they are equally sensitive to blurring and equally difficult to distinguish, helping to eliminate guessing. For example, the apple may be seen as a circle and the house may be seen as a square. The symbols are equally recognizable and are spaced so the distance between symbols on each line equals the size of the symbols on that line. The separation of the rows equals the height of the symbols in the smaller row and the inter-row separation equals the width of the symbol.

The Lea Symbols Chart™ can usually accurately screen most children 3 to 5 years of age. The

decision to switch to a letter chart is dependent on the child's ability to reliably identify the alphabet.

Pre-school through first-grade teachers should work with the students prior to the screening to help them identify the names of the shapes. The children may name the shapes other things, for example:

Circle – Ball, Round	House – Triangle, School, Church
Square – Box, House	Apple – Heart

Be sensitive to the child's desire to name the object him or herself. As long as the child is consistent in naming the objects it is appropriate to allow the children to decide how they see the object.

In some circumstances, adequate cooperation cannot be achieved to obtain accurate visual acuity screening results (especially with younger children or those with special needs). In these situations, objective vision screening technologies such as photoscreening or autorefraction may be helpful (see Section Vll). Alternatively, children who are unable to be reliably vision screened can be referred directly to an eye care professional for an evaluation.

ETDRS Chart™

The ETDRS Chart™ was developed for use in the Early Treatment Diabetic Retinopathy Study, hence the name ETDRS. The ETDRS chart™ uses all 10 Sloan letters (H, V, Z, D, S, N, C, K, O, R) and has the following advantages over other charts:

- The consistent number of letters per line will standardize the number (three) of correctly identified letters required to "pass" any given line.
- The Sloan letters used in the ETDRS chart™ are of approximate equal difficulty. Space between letters and lines is standardized to assure that each successively smaller or larger line is viewed with the same increasing or decreasing level of difficulty.
- The level of difficulty between the various combinations of letters from line to line varies less than 1% and no letters spell out words or acronyms on any line.
- The bottom portion of the ETDRS Chart™ consists of three tests of equal difficulty, enabling the screener to discourage memorization by using different charts for each eye. The center chart can be used for screening subjects unable to correctly identify at least the 20/50 line.

General Suggestions for Conducting Distance Visual Acuity Screening

- Use age and developmentally appropriate screening tools to ensure the child can match or identify symbols or letters.
- If a child wears glasses currently – screen the child with their glasses on.

- Observe for behaviors (ABC's) suggesting visual problems or difficulty.

Visual Acuity Screening for Near Vision (Optional Screening)

The optional near acuity screening uses screening tools that are similar to the ones recommended for distance acuity in a near format. Smaller cards, held at a distance of 13 to 16 inches (40 mm), depending on the manufacturer are used to measure near acuity. Near visual acuity cards are available with the following charts:

- Lea Symbols Near Vision Chart™
- ETDRS Letters Near Vision Chart™

Some of the same tips as for distance visual acuity screening apply when using near visual acuity screening tools. A partial list is included below:

- Check to see that the child is able to identify the symbols in their own words.
- Follow the manufacturer's suggested distance on the card for each screening tool. (Some cards come with a pre-measured cord to show the proper distance that the card should be held for screening).
- Start with binocular screening (both eyes) to practice the symbols. If you have enough volunteers, practice the symbols (or letters) with the child prior to screening.
- Visual acuity is recorded as the last line on which more than half of the symbols were identified correctly.
- Continue to screen each eye separately.

Stereopsis Screening

Random Dot "E" Tool

The Random Dot E Test® stereo screening, or RDE as it is commonly called, is the recommended tool for stereopsis screening. Stereopsis screening is recommended for all children through third grade or age 9. The RDE screening set includes two cards with random dot patterns, one of which contains a three-dimensional picture, or stereogram of the letter E. While wearing polarized glasses, the stereogram is visible to individuals with stereopsis, but not visible to those without binocularity. Using the two screening cards and polarized glasses, the child is asked to identify the card with the "E". Referral criteria found in the manufacturer's instructions should be followed. Always refer children who do not pass the stereopsis screening. The Randot Stereo Test® which utilizes shapes (e.g. star,circle,etc.) rather than the letter "E" also are available for use with children 5 and younger. Some technology and

computer-based methods automate the inclusion of stereopsis screening, employing shapes, at age appropriate levels.

Stereopsis is the visual perception of three-dimensional space resulting from the blending of the images from each eye. Stereopsis screening is conducted to determine if the eyes are working together. When the brain is able to blend the separate images from each eye into one image, the child can perceive three-dimensional space and is said to have Stereopsis, or binocular vision. In the child whose eyes are not working together, the brain is unable to blend the separate images from each eye. The child who does not pass the Random Dot "E" screening is at great risk for amblyopia, or loss of vision in one eye. He or she should see an eye doctor for a comprehensive examination.

Random Dot "E" screening is only necessary for children who have passed the acuity screening. Since children generally love the glasses game, many screeners screen every child, regardless of the acuity results, to avoid hard feelings among the children.

Color Vision Screening

Color Vision Made Easy®

The recommended color deficiency screening tool is Color Vision Testing Made Easy®. The purpose of this screening is to detect children who are red-green color deficient. It is comparable to other color vision screens such as Ishihara color plates. The referral criteria found in the manufacturer's instructions should be followed.

Each screening set consists of one demonstration card and nine "test" cards (labeled 1-9) displaying a circle, star and/or square. The cards should be held at 30 inches (75cm) and at right angles to the child's line of sight. Give only 3 seconds to correctly identify each test card. The most practical light source is indirect natural light or fluorescent lighting. Improper lighting or exceeding the three-second time limit invalidates the screening. If the child correctly identifies 8 of the 9 "test" cards, they pass. If they do not pass, rescreen using cards 1-9 with the circle, star, and square for confirmation.

Note: Even individuals with color deficiency should correctly identify the demonstration card and one object on the first six cards. This checks for malingering and confirms the individual understood how to take the test.

Section VI: Notification, Referral, Follow-Up and Continual Program Evaluation

Notification

Parents and guardians should be notified of abnormal screening results within two weeks of vision screening or rescreening if one is performed. Notification includes the following persons:

- Parent or guardian (pass and refer results)
- Classroom teacher (refer results)
- Guidance counselor (refer results)
- Certified teacher of students with visual impairments (if available)
- Other school staff on a need to know basis such as librarian, exceptional education resource teacher, etc.

A sample notification letter is provided in the attachments to this document. This should be mailed to the parent or guardian, **NOT** hand-carried by the child. Some technology and computer-based screening methods will automatically generate a report for each child.

Referral

Referrals should be made if the child's screening results indicate a need for further evaluation. A child may also be referred if the screener, teacher or school health staff notices behavior or symptoms suggesting that there may be a vision or health problem. All children who do not pass the vision screening should be referred to an eye care professional for further evaluation. All students who cannot or will not be evaluated should also be referred. Find out what resources the family has for getting an examination by an eye care professional. If private insurance is available, this resource should be utilized. If the child has insurance through the Arizona Health Care Cost Containment System (AHCCCS) or Kids Care, the services should be covered and the parent or guardian referred to their plan provider. If these options are not available, parents or guardians are to be provided resource information for obtaining services at low or no cost. Information about resources is available in the resources section of this document and on a flow chart in the attachments.

Follow-Up

The ultimate reason for conducting screening is to help children in need of further evaluation.

Whatever can be done to achieve the goal of a professional eye examination should be done. One way to promote success in achieving this goal is to make a follow-up phone call to the parent or guardian after the notification/referral letter is mailed. A second phone call should be made to the child's home if information about the referral has not been received within 3 to 4 weeks. In some cases, a home visit or conference with the parent or guardian may be appropriate. Document all relevant information regarding screening results, referrals, parent or guardian comments and results of professional evaluation in the child's health record. Depending on the diagnosis and treatment, additional assistance may be necessary and accommodations made. The child's teacher, counselor, special education director and other school personnel should be informed of the results of the professional examination.

Continual Program Evaluation

It is not enough to conduct a vision screening program. A process of assessing the program is recommended. Evaluation involves asking the right questions. Below is a list of initial questions that may assist in beginning an evaluation process (Rossi, Freeman & Lipsey, pp. 89-90, 1999).

- Is there a need for the program
- Is the program well-designed
- Is the program implemented effectively
- Does the program have the intended outcomes
- Is the program cost-effective

Extensive information on evaluating a vision screening program can be found in the book, To See or Not to See: Screening the Vision of Children in Children by Susan E. Proctor (2005).

Section VII: Technology and Other Objective Vision Screening Methods

Technology is having an impact on the vision screening process. New technologies are providing additional options that can make screening more valid and reliable. Technology-based screening tools can be especially useful when screening children who can be challenging to assess using traditional methods such as very young children or some children with special needs. Information on selected technological advances is provided to make schools and other organizations aware of their availability.

Automated Computerized Screener: EyeSpy™ 20/20

EyeSpy™ 20/20 is a technology that uses software to automate assessing visual acuity (with standardized charts) and stereopsis while a child "plays" a 2 - 3 minute video game. The advantages of computerizing the vision screening process include the ability to collect and report data, to employ validated vision screening protocols (e.g. the Amblyopia Treatment Study Protocol, etc.), to preprogram the eye chart selection based on age, and to facilitate uniform and accurate screening with less variability among different proctors administering the screening (VisionQuest 20/20, 2009). For more information on using the EyeSpy 20/20™ vision screening method, please contact VisionQuest 20/20 at 564 West 9th Place, Suite 3, Mesa, AZ 85201. Phone (602) 903–3099.

PlusoptiX™ and other Auto-Refractors

PlusoptiX™ is a technology which combines performing a simultaneous autorefraction on both eyes with a photoscreening. Autorefracting both eyes simultaneously is preferable to autorefracting one eye at a time because it ensures each eye is accommodating equally and is theoretically better at detecting anisometropia (unequal focus between the eyes). Autorefraction referral criteria are easy to customize to make the PlusoptiX™ instrument more sensitive or specific depending on the population and age of children being screened. The instrument's referral settings can be calibrated to match the screening guidelines of the American Association for Pediatric Ophthalmology and Strabismus (AAPOS). In addition to simultaneously autorefracting both eyes, PlusoptiX™ also performs a photoscreening which has benefit in detecting media opacities (e.g. cataracts) or strabismus (eye misalignment). The photoscreening pass/not pass results are preset and cannot be customized (VisionQuest 20/20, 2009). For more information on auto-refractors, see Proctor (2005) and www.plusoptix.com.

Photoscreeners

The photoscreener is an instant film camera designed to document the light reflexes that are emitted from the eye. The camera was developed as a screening tool for the detection of amblyogenic conditions such as strabismus and refractive errors, including myopia and hyperopia, as well as unequal refractive error and astigmatism. The photoscreener should be used as a screening device only. Photo refraction does not screen directly for the presence of amblyopia, but rather for eye problems that can cause amblyopia if left untreated. The primary advantage of photo refraction is that it can be used with children who are otherwise unable to be screened, preverbal children and developmentally disabled children.

The Photoscreener is a photo refraction instrument, which requires one photograph with two simultaneous flashes. Instant photo film is used. If a trained expert is onsite, results of the vision screening can be obtained immediately. Otherwise, photos must be mailed or e-mailed to a qualified individual for interpretation. The film and interpretation costs make this method more expensive than some of the others mentioned in this document.

Photo refraction is a promising technology that allows the expansion of screening programs to include children from 3 to 5 years of age who are not being screened effectively (preverbal and developmentally disabled children). There are multiple vendors for photoscreeners. Please consult the internet.

Optec and Titmus Machines

These machines are fairly accurate for distance and near vision. However, they are not as accurate at screening for eye muscle imbalances. The advantage is that they do not require 10 or 20 feet and have a consistent light source. The machines are not recommended for use with children 9 and younger. There are multiple vendors for Optec and Titmus machines. Please consult the internet.

Glossary

Amblyopia: An ocular condition, in an otherwise healthy eye, in which there is an abnormality of cortical response in the occipital lobe of the brain due to insufficient or inadequate stimulation of the fovea neural pathway, and cortex.

Ametropia: A refractive error in which parallel rays of light do not come into focus on the retina; ametropia may connote either hypertropia or myopia.

Astigmatism: A refractive error of the eye in which, with accommodation suspended, the refracting power of the eye is not uniform in all directions such that incoming rays of light in a single eye do not come together to focus at a single point, but rather are focused at two or more points.

Autorefractor: A new technology consisting of a small, portable light-weight vision assessment system capable of detecting refractive errors. The portable autorefractor is a miniature version of refractors used in professional eye care practices.

Binocular vision: The simultaneous stimulation of both foveae with incoming light rays representing the same image. Used interchangeably with binocularity and is composed of both ocular alignment and stereoacuity.

Central vision: The term used to connote the function of the eye that enables optimal perception of form, shape, clarity, and keenness of image. Centeral vision is a function of the cones of the retina.

Color disorder: A condition of the eye in which there is a diminution, absence, or unresponsiveness of photochemical receptors in the cones, or an alteration in the structure or function of the cones unrelated to color receptors.

Color vision: The perception of all specters of white light due to responsiveness of the cones in the fovea and macula, which contain photochemical receptors sensitive to red, green, or blue light.

Color vision deficiency: A diminution or lessening of one of the three pigments in the color-sensitive cones of the retina.

Cones: Photoreceptor cells of the retina tightly packed in the posterior area of the chamber except in the part of the eye where the optic nerve enters. Cones are particularly abundant in and near the fovea and the macula and allow the eye to perceive form and color.

Cornea: The transparent, highly-nerve-sensitive area that covers the pupil, and is contiguous with its insertion at the outer edges or margins of the iris. The cornea markedly affects visual acuity through its shape and curvature.

Distance vision: The ability of the eye to see images clearly at a distance (often a great distance).

Distance vision chart: A wall-mounted, portable, or computer-based chart composed of optotypes arranged in lines of increasingly smaller size designed to assess distance vision and other visual functions.

Fovea centralis: The area of the retina made up entirely of cones at the center of the macula lutea and responsible for the very keenest vision.

Iris: The colored part of the eye adjacent to the pupil.

Lens: An elastic, almond-shaped structure immediately posterior to the pupil responsible for accommodation. Also termed the crystalline lens.

Low vision: A term applied to best-corrected central vision of less than 20/60 to as poor as 20/1,000 depending on category. The categories of low vision are moderate, severe, and profound.

Muscle balance: A lay term used in schools to connote the ocular alignment component of binocular vision.

Near vision: The ability of the human eye to see objects with clarity at close range, also termed near point acuity or near acuity. Optimal near vision requires both accommodation and convergence.

Near vision chart: A wall-mounted, portable, or computer-based chart composed of optotypes arranged in lines of increasingly smaller size designed to assess near vision, particularly accommodative reflex.

Occluder: An object that temporarily obstructs vision during vision screening or testing, preventing an eye from visualizing a focal point.

Ocular alignment: A positioning of both eyes by the extraocular muscles so they are targeting the same focal object simultaneously with the result that two images, one from each eye, fall on the same respective foveae. The eyes are said to be parallel.

Optic nerve: The second of the 12 cranial nerves responsible for vision. Its portal at the posterior of the eye is the only blind spot on the retina, and its connections proceed through the brain first crossing, then proceeding through the lateral geniculate body in the thalamus, and terminating in the occipital lobe.

Peripheral vision: The ability to perceive movement at the periphery of normal visual ranges while targeting a central object.

Pupil: The hole in the center of the iris that enlarges or constricts in accordance with the amount of light entering the eyes as well as the proximity of an object in focus.

Refraction: The bending of the light rays to facilitate convergence on the retina.

Retina: The innermost or third layer of the inner eye composed of cones and rods, which receives the image entering the eye and is the immediate instrument of vision.

Rods: One of the types of visual cells of the retina located on the periphery of the retina and sensitive to light and motion.

Screening: The use of quick and simple procedures to identify and separate persons who are apparently well or unaffected, but who may be at risk of a disease entity, health problem, or condition, from those who probably do not have the disease.

Stereoacuity: The term given to grade 3 fusion with stereopsis and maximum clarity of image. A stereoacuity test is a measure of stereopsis and visual acuity.

Stereopsis: Depth perception or three-dimensionality possible only when both eyes are in alignment and perceive the same image clearly.

Strabismus: A manifest deviation of one or both eyes from the visual axis of the other so they are not simultaneously directed to the same object.

Tracking: (1) Versions, or willful eye movements, which are slow and smoothly following a moving target (medical definition). (2) Versions or willful movements, which are rapid and successive, and focus on fixed targets, such as words (educational definition).

Visual acuity: The state, condition, or effectiveness of central vision.

Visual impairment: A term used by eye care professionals to refer to the child or adult whose best-corrected central vision is less than 20/40 but better than 20/200.

(Glossary is from Proctor, 2005 and is used with permission).

Resources

A list of current resources is available from:

http://www.azdhs.gov/phs/owch/sensory.htm

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Attachments

ATTACHMENT 1	SAMPLE OPT OUT FORM
ATTACHMENT 2	VISION SCREENING RECORD
ATTACHMENT 3	VISION FOLLOW-UP RECORD
ATTACHMENT 4	SAMPLE VISION REFERRAL
ATTACHMENT 5	FLOW CHART FOR SCHOOL VISION SCREEENING
ATTACHMENT 6	DIAGRAM FOR SET-UP OF ACUITY SCREENING AREA
ATTACHMENT 7	AGE-APPROPRIATE PEDIATRIC VISION SCREENING GUIDELINES
ATTACHMENT 8	ABC'S OF VISION PROBLEMS

ATTACHMENT 1

SAMPLE OPT OUT FORM

To: School Nurse

I do not wish for my child to have a vision screening until further notice. I understand that I may change my mind at any time and will do so in writing.

My child's name is: _____

Signature:_____ Date:_____

Printed Name: _____

I am the child's ___parent___guardian.

VISION SCREENING RECORD

School Year _____

DATE	SCHOOL	CITY/ZIPCODE
GRADE	TEACHER	SCREENER

			Results are indicated with a P (Pass) and F (Fail)														Y-Yes N-No
Student's Name			Distance visual acuity				MB @N		MB @D		Color Vision		Stereopsis		Near visual acuity		
LAST	**FIRST**	OBSERVATION	1st R	1st L	2nd R	2nd L	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	Referral

VISION SCREENING RECORD

School Year _____

Student's Name		OBSERVATION	Results are indicated with a P (Pass) or F (Fail)														Y-Yes N-No
			Distance visual acuity				MB @N		MB @D		Color Vision		Stereopsis		Near visual acuity		
			1st		2nd												
LAST	FIRST		R	L	R	L	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	Referral

VISION FOLLOW-UP RECORD

School Year _____

DATE	SCHOOL	CITY/ZIPCODE
GRADE	TEACHER	SCREENER

List the names of children referred for an eye examination. The record is designed to assist schools in evaluating their vision screening programs and in organizing information for their annual reports. Note that electronic health record management systems may be used instead of this form.

NAME	REASON FOR REFERRAL									FOLLOW-UP RESULTS				
	Indicate "F" (for Fail) in the appropriate box or boxes below. If referred due only to observation, write the reason in the column labeled "observation".									**Place a check mark (√) to indicate answer in appropriate column.**				
	Distance visual acuity R	L	MB @ N	MB @ D	Color Vision	Near visual acuity R	L	Stereopsis	Observation	Normal	Glasses	Treatment	No Info	Case Closed

VISION FOLLOW-UP RECORD

School Year _____

NAME	REASON FOR REFERRAL									FOLLOW-UP RESULTS				
	Indicate "F" (for Fail) in the appropriate box or boxes below. If referred due only to observation, write the reason in the column labeled "observation".									**Place a check mark (√) to indicate answer in appropriate column.**				
	Distance visual acuity R	L	MB @ N	MB @ D	Color Vision	Near visual acuity R	L	Stereopsis	Observation	Normal	Glasses	Treatment	No Info	Case Closed

ATTACHMENT 4

H V Z D S
N C V K D
C Z S H N
O N V S R

SAMPLE VISION REFERRAL

_____ DISTRICT
HEALTH SERVICES

NAME /*NOMBRE:*_____ Date/*Fecha:* _____

Grade/*Grado*: _____ Rm/*Salon:*_____ School/*Escuela:* _____

Dear Parent or Guardian:

Your child was given a vision screening as part of the Health Services program at their school. There seems to be some **eye difficulties**, which should be more thoroughly checked by your child's doctor. A complete eye exam is recommended. Please take this form to the eye specialist and return it to the school health office when completed. If you are unable to take your child to an eye doctor, please contact the nurse or school health office for assistance.

Estimados Padres o Tutores:

A su hijo se la ha hecho un examen de la vista, como parte del programa de los servicios de salud de su escuela. Parece ser que su hijo(a) tiene alguna **dificultades ojo** la cual debe ser mas minuciosamente checada por el doctor del niño. Se recomienda un examen completo de sus ojos. Por favor lleve esta forma con el especialista de la escuela cuando haya sido completada. Si no le es posible llevar a su niño con el especialista de los ojos, por favor contacte a la enfermera o escuela oficina de salud de la para recibir ayuda.

Visual Acuity:

	With glasses *con lentes*	Without glasses *sin lentes*
☐ Far Vision / *Vision Lejana:*	OU: _____,	OD: _____, OS: _____
Far Norm / *Normal Lejano*:	OU: 20/20,	OD: 20/20, OS: 20/20
☐ Near Vision / *Vision Cercana:*	OU: _____,	OD: _____, OS: _____
Near Norm /*Normal Cercana*:	OU: 16/20,	OD: 16/20, OS: 16/20

Occular Alignment / Aliniacion Ocular *

_____

School Nurse/*Enfermera de la escuela* Phone/*Teléphono*

EXAMINER'S REPORT:

	Distance	Near
Visual Acuity:	OD: _____ OS:_____	OD:_____ OS: _____
Corrected Vision:	OD: _____ OS:_____	OD: _____ OS: _____

Diagnosis:_____

Other findings:_____

This child should wear glasses: _____

A reexamination is suggested for: _____

Date of Examination: _____ Doctor's Signature _____

Rev 7/10 sr

FLOW CHART FOR SCHOOL VISION SCREENING

PARENTS ARE NOTIFIED OF VISION SCREENING

↓

CHILDREN ARE SCREENED

↓ ↓

CHILDREN WHO PASS THE VISION SCREENING

Results are given to Parents/Guardians and primary care physicians upon request and others on a need to know basis such as teachers, counselors and other school personnel as per FERPA and school policy.

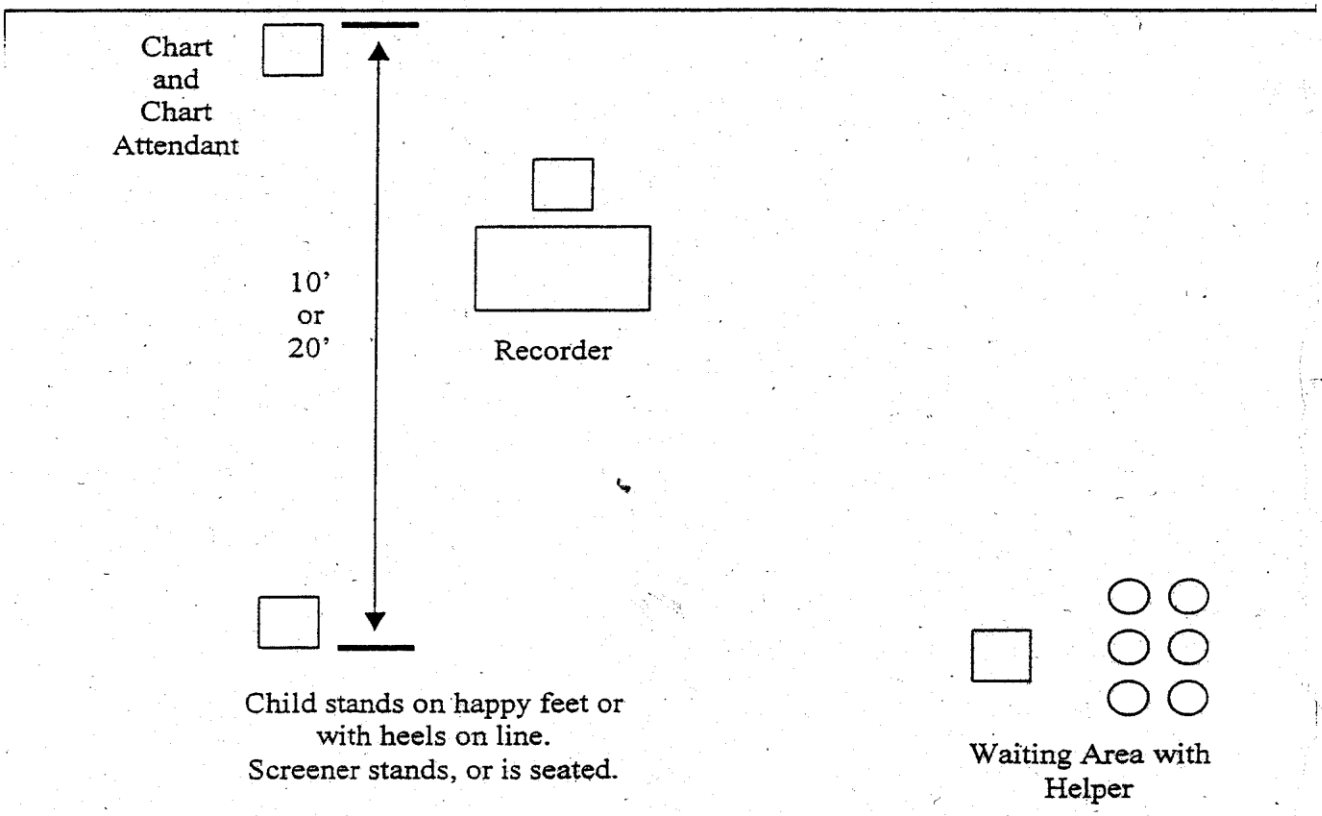
CHILDREN WHO DO NOT PASS THE VISION SCREENING

Results are given to parents/guardians by school nurse along with referral options and financial resources. Nurse may also provide results to teachers, counselors and other school personnel on a need to know basis as per FERPA and school policy.

1. Private Insurance
2. AHCCCS/Kids Care (refer to primary care physician)
3. School resources (if available)
4. If the above are not available, nurse may provide information to child's parent/guardian on free or reduced fee services found at www.azdhs.gov

Step 1: Setup Acuity Screening Area cont.

Typical Room Layout



Note:

In most settings, the stereopsis test is conducted near the recorder.

Limit the waiting area to five or six children with a helper to keep the screening environment quiet and free of distractions.

ATTACHMENT 7

AGE-APPROPRIATE PEDIATRIC VISION SCREENING GUIDELINES

The American Academy of Pediatrics (AAP) combined with AAO and AAPOS recommend the following Age-Appropriate Pediatric Vision Screening Guidelines:

Any Child with Systemic Risk Factors or "Warning Signs of Pediatric Eye Disease" should have A Confirmatory Eye Examination.

Newborns: The pediatrician should observe the appearance of the eyelids and external eyes, then carefully view the "Red Reflex" with a direct ophthalmoscope to rule out Congenital Cataract.

Infants: Pediatricians should add to regular observation of the face, eyelids and eyes and directed observation to whether both eyes, and each eye independently, can equally follow an interesting object (Cover Test and Fixation). The direct ophthalmoscope can be used to check the Enhanced Brückner Test.

Toddlers: Photoscreening and/or remote autorefraction can determine if your child is focused and aligned on an interesting object.

Pre-school: Children aged 4 and older should be able to describe or match a distance acuity test. The pediatrician MUST ASSURE that each eye is tested independently; this is best done by PATCHING THE UNTESTED EYE.(Photoscreening and remote autorefraction remain valid vision screening measures in preschool)

School Age: Pediatricians and School Nurses continue to test children for unilateral acuity and can add tests of binocularity (stereopsis) and color vision.

1. Swanson J. Eye examination in infants, children and young adults by pediatricians: AAP Policy Statement. Ophthalmology. 2003;110(4):860-865.
2. Swanson J, Committee on practice and ambulatory medicine -. Use of photoscreening for children's vision screening (AAP Policy Statement). Pediatrics. 2002;109(3):524-525.
3. VIPS. Comparison of preschool vision screening tests as administered by licensed eye care professionals in the vision in preschoolers study. Ophthalmology. April 2004;111(4):637-650.

Source: http://abcd-vision.org/issues/aap-guidelines.html

Please refer to this website to link to underlined items.

ABC's of Vision Problems

APPEARANCE

- Eyes cross, turn in or out
- Eyes "wander" all of the time, part of the time, or when the child is tired
- Red, watery or encrusted eyes
- Drooping eyelid(s)
- Frequent stys
- Presence of a white pupil – as the screener observes it or it appears in a photograph
- Eye injuries resulting in bruising, swelling or bloodshot eyes

BEHAVIOR

- Squinting, frowning, blinking or squeezing the eyes
- Thrusting head forward, or backward while looking at distant objects
- Rubbing the eyes
- Turning the head to use only one eye
- Tilting the head to one side
- Placing the head close to a book or a desk when reading or writing
- Closing or covering one eye, especially in sunlight
- Tripping, stumbling or daydreaming excessively

COMPLAINTS

- Headaches
- Eye pain
- Nausea or dizziness
- Burning, scratchy or itching eyes
- Blurred or double vision
- Words that "move" or "jump" when reading
- Sees blur when looking up after close work
- Unusual sensitivity to light